

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An ink jet recording apparatus comprising:
an ink jet recording head for receiving supply of ink from an ink cartridge provided with
storage means storing data for determining compatibility of a recording apparatus; and
control means for determining compatibility of ink based on the data in the storage means
and executing print operation, wherein said control means determines:

if compatibility to an ink cartridge cannot be confirmed when the ink cartridge is
mounted, the recording apparatus generates a caution and awaits input of one of a continuation
instruction and a cartridge replacement instruction by a user before the recording apparatus
executes a subsequent print operation, and

if the recording apparatus executes the subsequent print operation upon input of the
continuation instruction by the user, the recording apparatus generates the caution again after a
predetermined amount is printed.

2. (original): The ink jet recording apparatus as claimed in claim 1, wherein the
caution is generated each time a predetermined amount is printed.

3. (previously presented): The ink jet recording apparatus as claimed in claim 1, wherein if a cartridge replacement instruction is entered after the compatibility to the ink cartridge cannot be confirmed, the ink cartridge is moved to an ink cartridge replacement position.

4. (previously presented): An ink jet recording apparatus comprising an ink jet recording head for receiving supply of ink from an ink cartridge provided with storage means storing data and update storage means the recording apparatus further comprising:

default data storage means storing default data for controlling the recording head; and
print control means, which reads the data from the storage means of the ink cartridge to determine compatibility when the ink cartridge is mounted, which, if compatible, stores the data read from the storage means of the ink cartridge in the update data storage means and controls the ink jet recording head based on the data in the storage means of the ink cartridge, which, if incompatible and data is available from the update data storage means, executes print operation based on the data available from the update storage means, and which if incompatible and no data is available from the update data storage means, executes print operation based on the data in the default data storage means.

5. (original): The ink jet recording apparatus as claimed in claim 4, further comprising rewritable update data storage means, wherein the print control means is provided, which reads the data from the storage means of the ink cartridge to determine the compatibility when the ink cartridge is mounted, which, if compatible, updates data in the update data storage

AMENDMENT UNDER 37 C.F.R. §1.111
USSN: 09/688,187

means based on the data in the storage means of the ink cartridge and controls the ink jet recording head based on the data in the storage means of the ink cartridge, and which, if incompatible, executes the print operation based on the data in the update data storage means or the data in the default data storage means.

Claim 6 (canceled).

7. (previously presented): An ink jet recording apparatus comprising an ink jet recording head for receiving supply of ink from an ink cartridge provided with storage means storing data for determining compatibility to a recording apparatus, and control means for determining compatibility of ink based on the data in the storage means and executing print operation, comprising:

optimum drive condition storage means storing an optimum drive condition for an ink cartridge, compatibility of which can be confirmed;

setup range storage means storing normal setup range data for comparison with ink information in the storage means of an ink cartridge;

general-purpose drive condition storage means storing a general-purpose drive condition for making it possible to reliably print even with an ink cartridge, compatibility of which cannot be confirmed; and

a determination section which compares ink information read from the storage means of an ink cartridge with the normal setup range data, and executes printing using the optimum drive

condition if the ink information is within the normal setup range, and executes printing using the general-purpose drive condition if the ink information is out of the normal setup range,

wherein the general-purpose drive condition is set such that pressure for ejecting an ink droplet from the recording head is set larger than the optimum drive condition and that the record paper feed speed is set lower than the optimum drive condition.

8. (previously presented): An ink jet recording apparatus comprising an ink jet recording head for receiving supply of ink from an ink cartridge provided with storage means storing data for determining compatibility to a recording apparatus, and control means for determining compatibility of ink based on the data in the storage means and executing print operation, comprising:

optimum drive condition storage means storing an optimum drive condition for an ink cartridge, compatibility of which can be confirmed;

setup range storage means storing normal setup range data for comparison with ink information in the storage means of an ink cartridge;

general-purpose drive condition storage means storing a general-purpose drive condition for making it possible to reliably print even with an ink cartridge, compatibility of which cannot be confirmed; and

a determination section which compares ink information read from the storage means of an ink cartridge with the normal setup range data, and executes printing using the optimum drive condition if the ink information is within the normal setup range, and executes printing using the general-purpose drive condition if the ink information is out of the normal setup range,

wherein a plurality of the general-purpose drive conditions are provided so that reliable printing can be executed in association with the number or ratio of incompatible pieces of the attention ink information read from the storage element with respect to the normal setup range data.

Claims 9-13 (canceled).

14. (currently amended): ~~The ink jet recording apparatus as claimed in claim 11,~~ An ink jet recording apparatus comprising an ink jet recording head for receiving supply of ink from an ink cartridge provided with storage means storing data for determining compatibility to a recording apparatus, and control means for determining compatibility of ink based on the data in the storage means and executing print operation, wherein

if the ink cartridge is determined as being incompatible, the control means outputs data used as a guide for determining a compatible ink cartridge,

wherein the data used as a guide is at least one of (1) displayed on an operational panel of the ink jet recording apparatus and (2) outputted to a display of a host computer,

wherein the user guide data includes at least one of an address and a telephone number which a user can use to order or buy the compatible ink cartridge, and

wherein the control means determines the compatibility of the mounted ink cartridge based on the data from the storage means when the mounted ink cartridge is to be replaced, and the control means outputs data for specifying that the mounted ink cartridge is compatible.

15. (previously presented): A method of determining compatibility of ink based on data stored in storage means of an ink cartridge for supplying ink to a recording head of an ink jet recording apparatus, the method comprising:

generating a caution and awaiting input of one of a continuation instruction and a cartridge replacement instruction by a user before executing a subsequent print operation if compatibility to an ink cartridge cannot be confirmed when the ink cartridge is mounted; and

generating the caution again after a predetermined amount is printed if the recording apparatus executes the subsequent print operation upon input of the continuation instruction by the user .

16. (previously presented): A method of controlling an ink jet recording apparatus comprising an ink jet recording head for receiving supply of ink from an ink cartridge provided with storage means storing data and update storage means, comprising the steps of:

reading data from the storage means of the ink cartridge to determine compatibility of the ink cartridge when the ink cartridge is mounted to the recording apparatus;

storing the data read from the storage means of the ink cartridge in the update storage means and controlling the ink jet recording head based on the data in the storage means of the ink cartridge if the ink cartridge is compatible;

executing print operation based on the data available from the update storage means if the ink cartridge is incompatible and data is available from the update storage means; and

executing print operation based on data stored in default data storage means if the ink cartridge is incompatible and no data is available from the update storage means.

AMENDMENT UNDER 37 C.F.R. §1.111
USSN: 09/688,187

17. (previously presented): A method of controlling an ink jet recording apparatus comprising an ink jet recording head for receiving supply of ink from an ink cartridge provided with storage means storing data for determining compatibility to a recording apparatus, the method comprising:

comparing ink information read from the storage means with normal setup range data;

executing print operation using optimum drive condition if the ink information is within the normal setup range; and

executing print operation using general-purpose drive condition if the ink information contains information out of the normal setup range;

wherein the general-purpose drive condition is set such that pressure for ejecting an ink droplet from the recording head is set larger than the optimum drive condition and that the record paper feed speed is set lower than the optimum drive condition.

Claims 18-19 (canceled).

20. (previously presented): The ink jet recording apparatus of claim 4, wherein the default data includes data relating to a print medium feeding speed.

Claims 21-26 (canceled).

AMENDMENT UNDER 37 C.F.R. §1.111
USSN: 09/688,187

27. (previously presented): The method of controlling an ink jet recording apparatus of claim 16, wherein the default storage means includes data relating to a print medium feeding speed.

Claims 28-34 (canceled).

35. (previously presented): The ink jet recording apparatus as claimed in claim 1, wherein after the recording apparatus generates the caution, the recording apparatus does not execute the subsequent print until the user inputs the continuation instruction.

36. (previously presented): An ink jet recording apparatus comprising an ink jet recording head for receiving supply of ink from an ink cartridge provided with storage means storing data for determining compatibility to a recording apparatus, and control means for determining compatibility of ink based on the data in the storage means and executing print operation, wherein

if the ink cartridge is determined as being incompatible, the control means outputs data used as a guide for determining a compatible ink cartridge,

wherein the control means determines the compatibility of the mounted ink cartridge based on the data from the storage means when the mounted ink cartridge is to be replaced, and the control means outputs data for specifying that the mounted ink cartridge is compatible.

Claims 37-38 (canceled).

39. (currently amended): An ink jet recording apparatus to which an ink cartridge having storage means is mountable, the storage means has a predetermined format in which information ~~pieces relating to~~of data items ~~are~~is stored in respective data fields, the recording apparatus comprising:

a recording head to which ink is supplied from the ink cartridge mounted on the recording apparatus;

an optimum drive condition storage section storing an optimum drive condition for an ink cartridge compatible to the recording apparatus;

a general purpose drive condition storage section storing a general-purpose drive condition for an ink cartridge incompatible to the recording apparatus;

a normal setup range storage section storing a normal setup range of at least one data field;

a determination section which compares a portion of the information ~~piece~~ corresponding to and read from the at least one data field with the normal setup range, and determines whether the read information ~~piece is reliable or not~~has been damaged based on a result of the comparison;

a mode selection section which selects one of an optimum mode using the optimum drive condition and a general-purpose mode using the general-purpose drive condition based on the determination by the determination section;

a drive control section which controls printing by the recording head based on the selected one of the optimum drive mode and the general-purpose drive mode.

40. (currently amended): The recording apparatus according to claim 39, wherein if the read information ~~piece~~ is out of the normal setup range, the determination section determines that the read information is not reliable and the mode selection section selects the general-purpose mode.

41. (currently amended): The recording apparatus according to claim 39, wherein if the read information ~~piece~~ is within the normal setup range, the determination section determines that the read information is reliable and the mode selection section selects the optimum mode.

42. (currently amended): The recording apparatus according to claim 39, wherein if the read information ~~piece~~ is out of the normal setup range, the determination section determines that the mounted ink cartridge is the incompatible ink cartridge.

43. (currently amended): The recording apparatus according to claim 39, wherein the normal setup range storage section stores the normal setup ranges of selected ones of the data fields, and the determination section compares selected ones of portions of the information ~~pieces~~ corresponding to and read from the selected ones of data fields with the normal setup ranges, respectively.

44. (currently amended): The recording apparatus according to claim 43, wherein if at least one of the selected portions of information ~~pieces~~ is out of the corresponding normal setup range, the mode selection section selects the general-purpose mode.

45. (currently amended): The recording apparatus according to claim 43, wherein if all of the selected portions of information ~~pieces~~ are within the corresponding normal setup ranges, the mode selection section selects the optimum mode.

46. (previously presented): The recording apparatus according to claim 39, wherein the data items includes at least two of manufacturing year, manufacturing month, manufacturing day, attachment year, attachment month, attachment day, ink type and color information.

47. (currently amended): The recording apparatus according to claim 39, wherein the data items includes technical information pieces and additional information pieces, and the determination section uses at least one of the technical information pieces for the comparison.

48. (previously presented): The recording apparatus according to claim 39, wherein pressure for ejecting an ink droplet from the recording head is larger in the general-purpose drive condition than in the optimum drive condition.

49. (previously presented): The recording apparatus according to claim 39, wherein recording paper feed speed is lower in the general-purpose drive condition than in the optimum drive condition.

50. (currently amended): The recording apparatus according to claim 43, wherein the general purpose drive condition storage section stores a plurality of the general-purpose drive conditions and the mode selection section selects a general-purpose mode using one of the general-purpose drive conditions depending on how many or what ratio the selected portions of information ~~pieces~~ are out of the respective normal setup ranges.

51. (currently amended): A method of controlling an ink jet recording apparatus comprising an ink jet recording head provided with storage means with a predetermined format in which information ~~pieces~~ relating to data items are stored in respective data fields storing data for determining compatibility to a recording apparatus, the method comprising:

comparing a portion of the information ~~piece~~ corresponding to and read from the at least one data field with a normal setup range,

determining whether the read information ~~piece is reliable or not~~ has been damaged based on a result of the comparison;

selecting one of an optimum mode using an optimum drive condition and a general-purpose mode using the general-purpose drive condition based on the determination by the determination section;

controlling printing by the recording head based on the selected one of the optimum drive mode and the general-purpose drive mode.